

200 203 204 205 206 207 208 209 210 211

DVA concepts

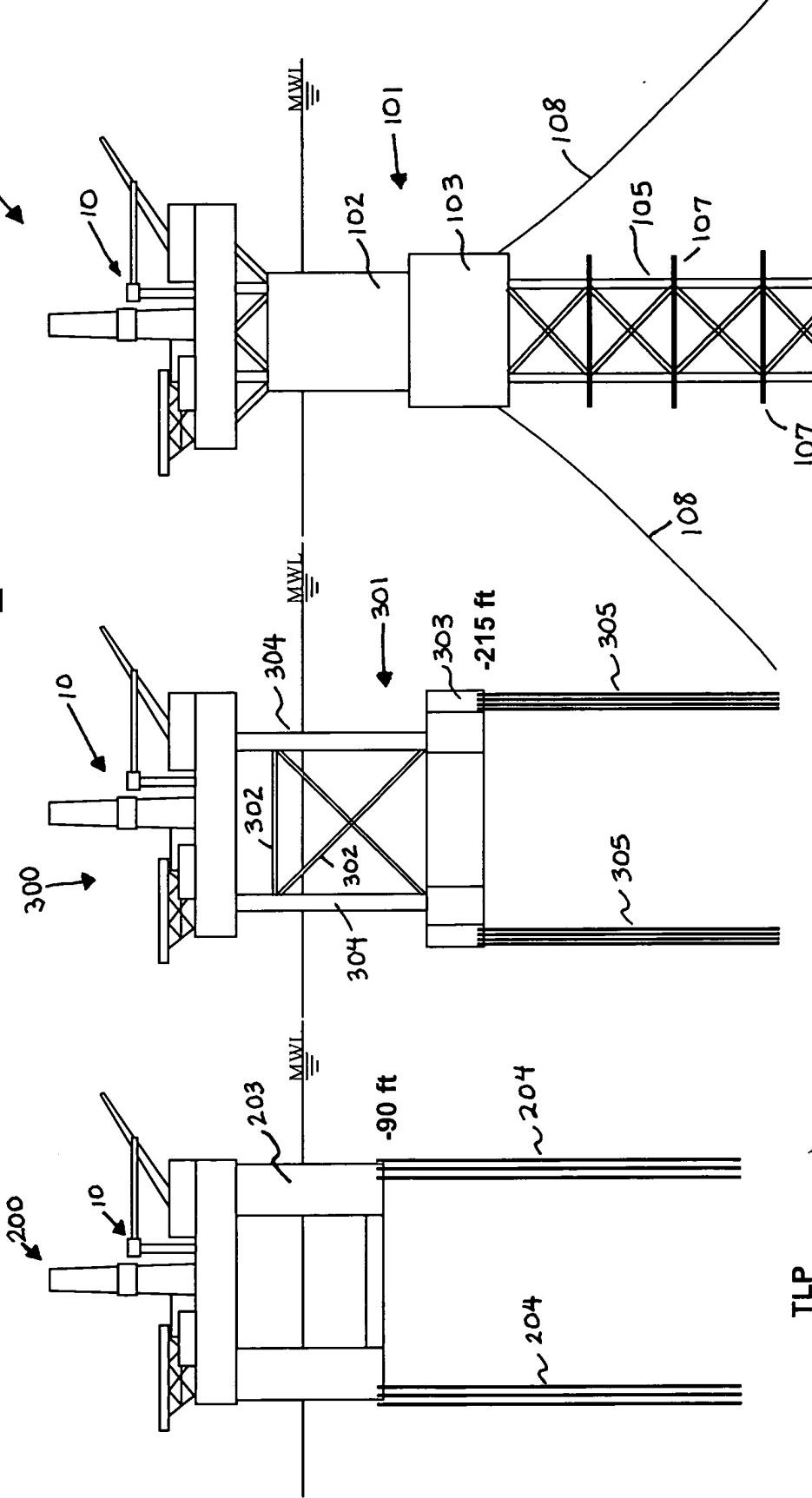


FIG. 1
(PRIOR ART)

FIG. 2
Soft TLP

FIG. 3
Truss step spar
(PRIOR ART)

A "Softer" TLP

- Natural heave and pitch period around 7 sec
- Minimize wave loads (heave force and pitch/roll moment) in 7 sec seas
- Draft is 215 ft
- Small columns (14 ft diam) minimize exposure in wave zone
- Narrow pontoons (30 ft wide by 70 ft high) reduce heave added-mass
- Extensions (65 ft long) increase pitch stiffness

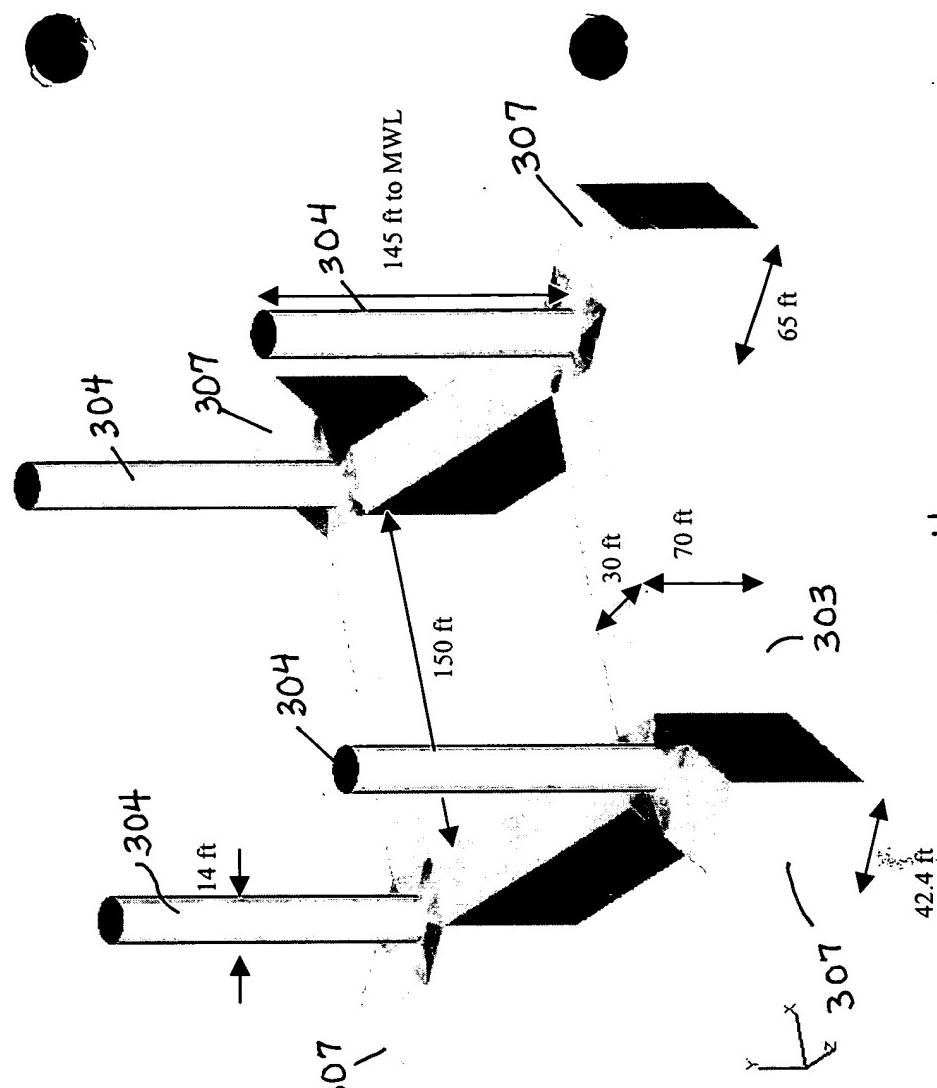
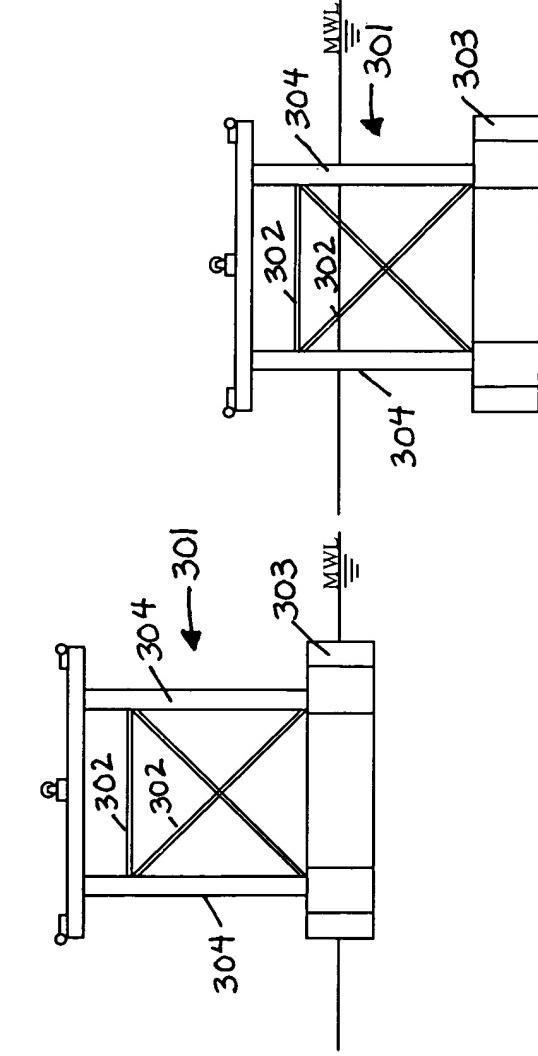


FIG. 4

Installation sequence 1/3



1. Hull towed to location

2. Hull ballasted to -220 ft

3. Tendons assembled by construction vessel

FIG. 5

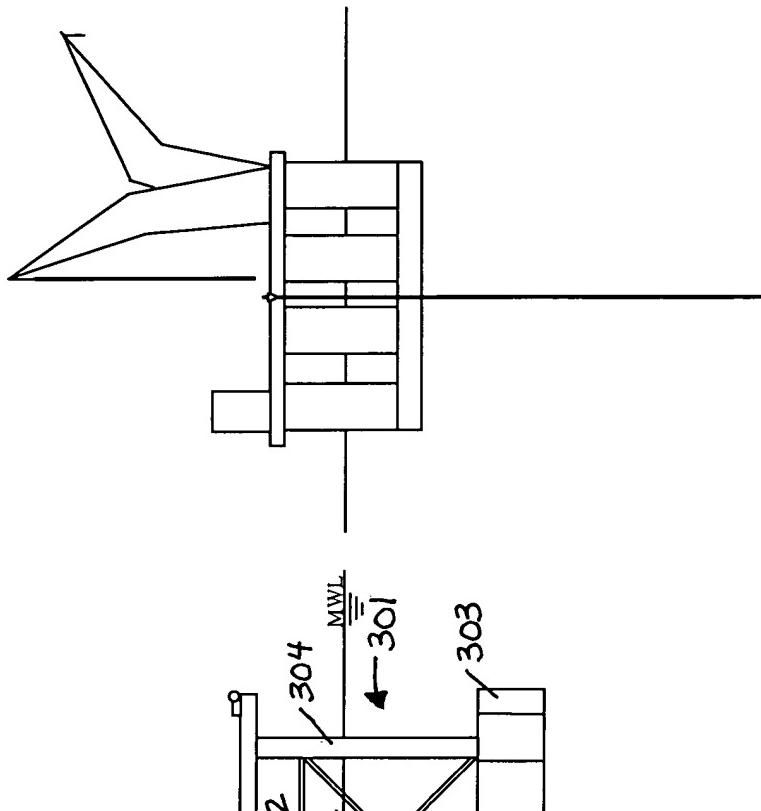


FIG. 6

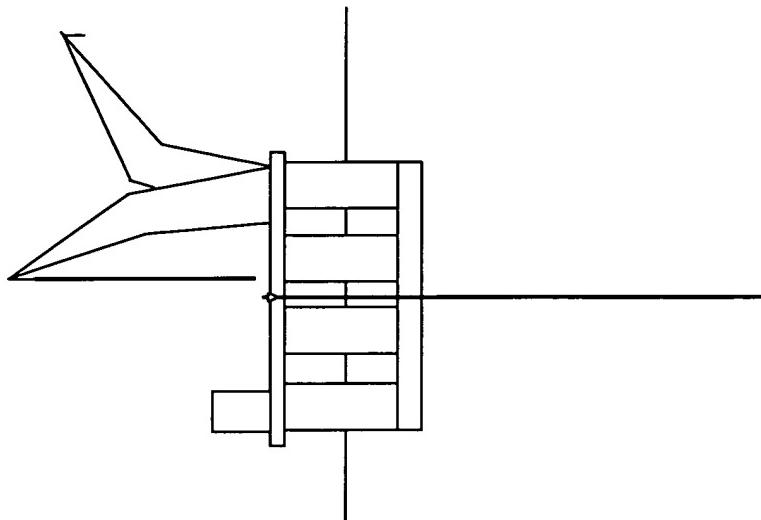
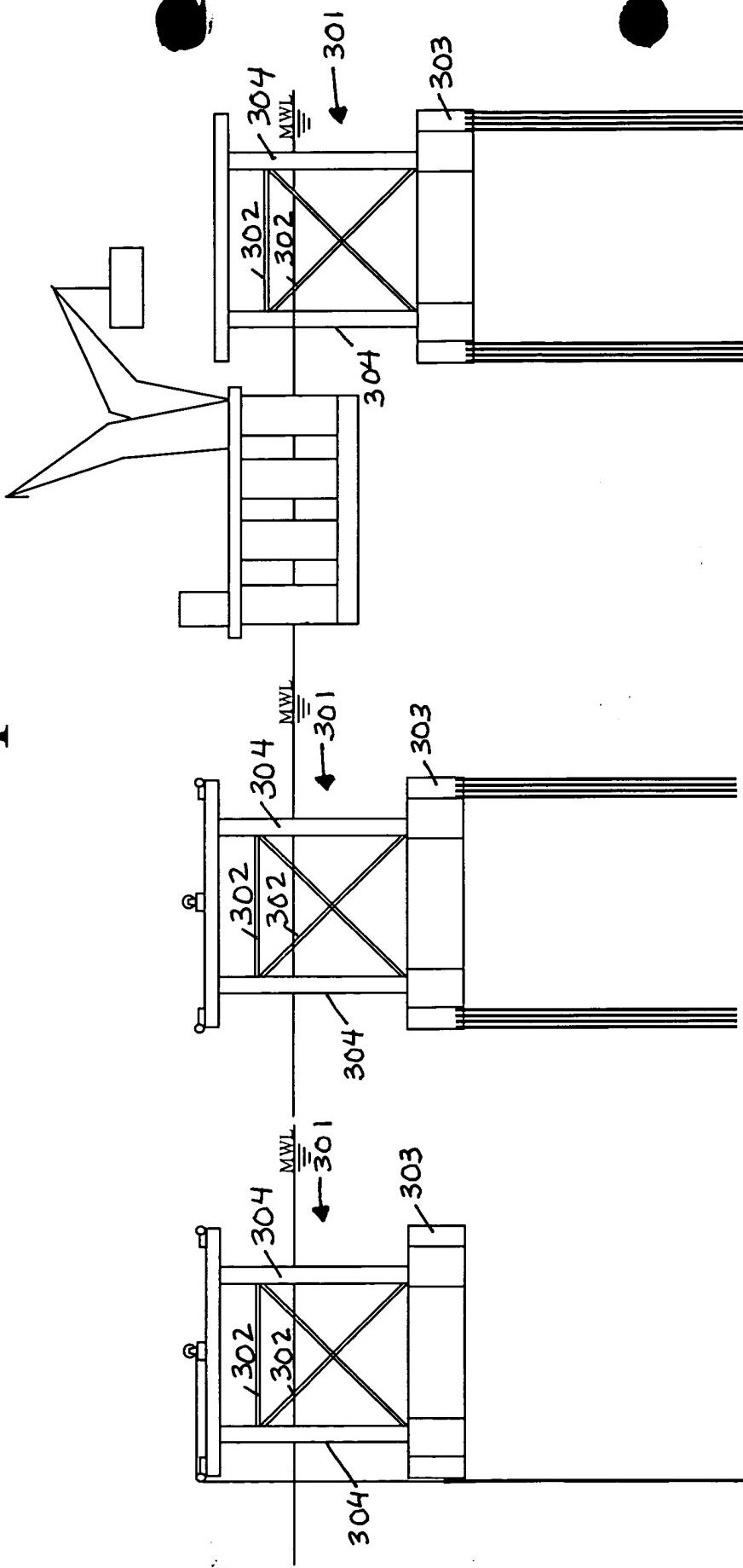


FIG. 7

Installation sequence 2/3



4. Tendons passed to Soft TLP
by sets of 4 and pre-connected

FIG. 8

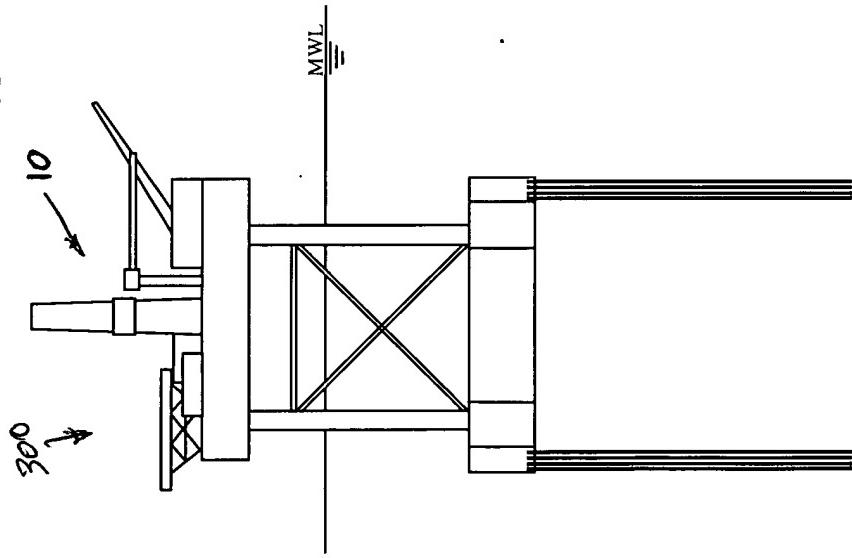
5. All tendons connected and
tensioned
- platform partly de-ballasted

FIG. 9

6. Deck assembled by modules

FIG. 10

Installation sequence 3/3



7. Deck complete and platform
fully de-ballasted

FIG. 11

Base case for study: carry Brutus TLP payload and functionality in 2,500 m

	short tons	Brutus	Soft TLP
Process module	4150	4150	
Quarter module	3000	3000	
Power module	2870	2870	
Drilling module	4500	4500	
Wellbay module	7700	7700	
Export risers	300	750	
Subsea risers	600	1500	
Interconnects	270	270	
Flare boom	150	150	
Ballast	4000	4000	
Total Payload	27540	28890	



Dynamic analysis

- Diffraction-radiation (Wamit)
- Viscous load and drift forces
- (Perfic)

- Tendon response and global motion (Cosmos)
- Tendon fatigue (Cfpost)

DOF	Mean	Rms	Max	Min
Wave height (ft)	0.00	9.97	37.97	-37.97
Offset (ft)	223.9	16.3	276.5	171.3
Heave (ft)	-3.03	0.75	-0.25	-5.82
Pitch (deg)	-0.18	0.26	0.79	-1.15
Yaw (deg)	-7.34	0.77	-5.12	-9.53
Bot. Tens. (kips)	2087	428	4013	161
Top tens. (kips)	3040	371	4709	1370

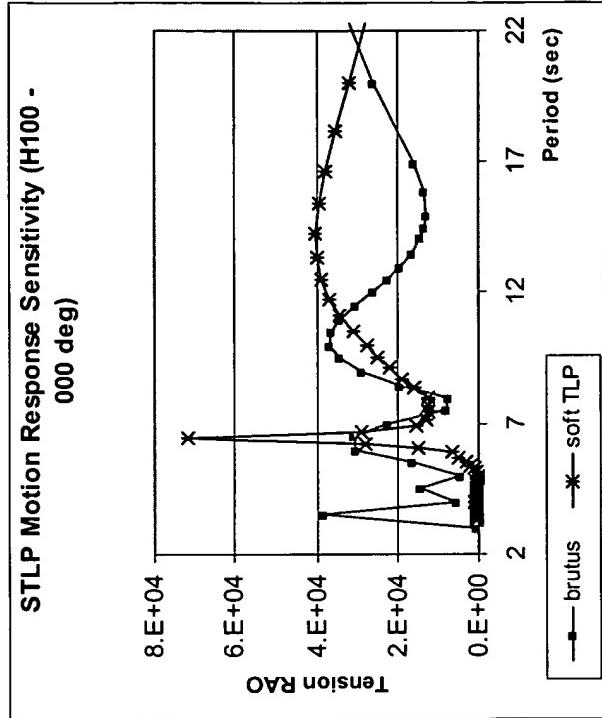


FIG. 13

FIG. 14